

## Product name : Permanent magnetic chuck TS-2010A

### PERFORMANCE PARAMETERS

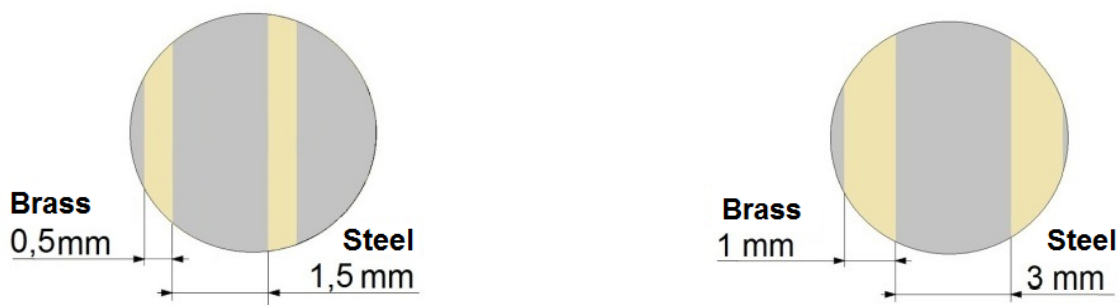
|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Length                                    | 200 [mm]                                     |
| Width                                     | 100 [mm]                                     |
| Height                                    | 50 [mm]                                      |
| Magnet type                               | Neodymium                                    |
| Maximum working temperature               | ≤ 80 °[C]                                    |
| pole layout                               | poprzeczny do kierunku obróbki, 1,5 + 0,5 mm |
| with separable magnetic field             | yes                                          |
| Magnetic field switcher                   | yes, one for all planes                      |
| handling mode                             | ręczny                                       |
| for the small parts holding               | yes                                          |
| Number of axis to attach details          | 1                                            |
| force needed to mount ( to attract) items | 100                                          |
| Weight                                    | 7 [kg]                                       |

### Description

TS series permanent magnetic chucks are designed to clamp ferromagnetic workpieces (i.e. iron, structural steel, alloy steel, cast iron) during grinding, milling and electrical discharge machining. The body of the chuck consists of a single block of steel, while its top plate is made from steel and brass lamellas placed interchangeably. TS series chucks use neodymium magnets, thanks to which the maximum clamping force is obtained. Two stop rails can be used for better clamping.

The magnetic field can be turned on and off with the use of a lever turned by 180° (Allen wrench). The rigid structure of the chuck enables very precise machining, while its tightness allows using the chuck for operations involving coolant or operations in full submersion.

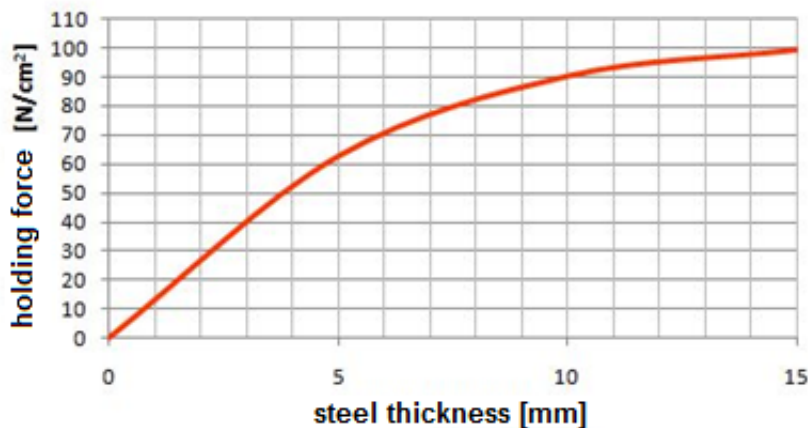
The chucks are available in two variants of the magnetic pole pitch (1.5 + 0.5 [mm] or 3.0 + 1.0 [mm]), which allows matching the type of chuck to the size of the workpieces to be clamped. Pole pitch diagram:



The clamping force depends on the following parameters:

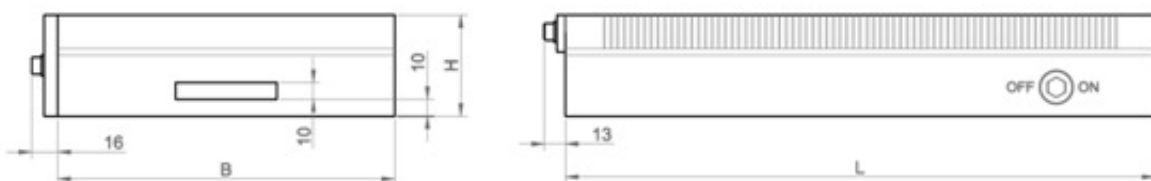
- type of material:  
(the clamping force increases proportionally to the content of iron in steel)
  - Armco iron 100%
  - low-carbon steel 90% (St3s)
  - high-carbon steel 80% (St45)
  - alloy steel 70% (Corrax)
  - high-alloy steel 65% (1.2436)
  - cast iron 50%
- roughness of the surface of the chuck and the workpiece clamped:
  - for Ra up to 0.08  $\mu\text{m}$  100%
  - for Ra up to 0.20  $\mu\text{m}$  90%
  - for Ra up to 1.25  $\mu\text{m}$  70%
  - for Ra up to 6.30  $\mu\text{m}$  50%
  - for Ra up to 25.00  $\mu\text{m}$  30%
- thickness of the workpiece clamped (the tests were carried out for plates with the size of 20 x 20 mm made of Armco iron):

**Graph of holding force depending on the material thickness**



- contact area - in order to ensure good holding, workpieces cannot be shorter than 3 mm and additionally, in the case of small surfaces, they should be surrounded with auxiliary plates. The maximum clamping force per sq. cm is obtained for workpieces with an area of approx. 4 sq. cm. A further increase in the workpiece area does not translate into a higher clamping force. It is also important that the workpiece clamped is parallel to the chuck, because every roughness, even the smallest, causes a decrease of the clamping force. The design of the chuck allows regenerating the working area by grinding it to 5 mm of the thickness.

The rectangular magnetic chucks available in our offer are presented below:



| Type of the chuck | Dimensions [mm] |     |    |            | Weight [kg] |
|-------------------|-----------------|-----|----|------------|-------------|
|                   | L               | B   | H  | Pole pitch |             |
| TS-1010A          | 100             | 100 | 50 | 1,5+0,5    | 4,0         |
| TS-1510A          | 150             | 100 |    |            | 5,0         |
| TS-1710A          | 175             | 100 |    |            | 9,5         |
| TS-2010A          | 200             | 100 |    |            | 10,0        |
| TS-2512A          | 250             | 125 |    |            | 8,5         |
| TS-1515A          | 150             | 150 |    |            | 8,5         |
| TS-2015A          | 200             | 150 |    |            | 11,5        |
| TS-3015A          | 300             | 150 |    |            | 17,5        |
| TS-3515A          | 350             | 150 |    |            | 20,0        |
| TS-4015B          | 400             | 150 | 50 | 3,0+1,0    | 27,5        |
| TS-4020B          | 400             | 200 |    |            | 38,0        |
| TS-4520B          | 450             | 200 |    |            | 43,0        |
| TS-5020B          | 500             | 200 |    |            | 50,0        |
| TS-5025B          | 500             | 250 |    |            | 58,0        |
| TS-6025B          | 600             | 250 |    |            | 73,0        |
| TS-6030B          | 600             | 300 |    |            | 78,0        |

The kit includes:

- magnetic chuck
- stop rails with bolts - 2 sets
- Allen wrench to turn on the magnetic field - 1 piece